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ABSTRACT

A study examined young children's learning from selected television program content in varied subject matter and the relationship between that learning and the amount of time a child watches television with and without adults. A 28-item learning test based on instructional design principles was developed from selected television segments and administered to 261 kindergarten through second-grade children. Independent variables included age, sex, level in school, television viewing hours with and without an adult, birth order, family composition, and parents' education. A questionnaire was sent to parents/guardians of all subjects. Results indicate that the amount of viewing that children do with adults makes a difference in how well they understand what is viewed; subjects whose adults in the home had more education watched less television, usually had fewer siblings, did better in school, and learned more from the selected television programming, especially programming designed to teach content traditionally taught in elementary schools; and the amount of viewing, sex, birth order, and family size were not related to the amount of a child's cognitive learning from television. Twenty-seven references are listed. (LMM)

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Children's Learning from Broadcast Television: The Relationship Between the Amount of Time a Child Watches Television With and Without Adults and that Child's Learning from Television

Susan Ruotsala Storm, Ph.D.

Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, Anaheim, California, January 17-22, 1985

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CHILDREN'S LEARNING FROM BROADCAST TELEVISION: THE RELATIONSHIP BETWEEN THE AMOUNT OF TIME A CHILD WATCHES TELEVISION WITH AND WITHOUT ADULTS AND THAT CHILD'S LEARNING FROM TELEVISION

Susan Ruotsala Storm, Ph.D.

Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, Anaheim, California, January 17-22, 1985

ABSTRACT

The research was designed to determine young children's learning from selected television program content where the subject matter varies and to test for a relationship between that learning and the amount of time a child watches television with and without adults. It used a unique learning test developed from selected television segments using instructional design principles. A score was determined for each subject on each broadcast segment, as well as a total score. These were the dependent variables. The independent variables included: age, sex, level in school, television viewing hours with and without an adult, birth order, family composition, and education of parents. This study assumes that television learning tests can be developed; assessment can be made of what children learn from television; variables can be identified that account for the variance in scores on the television learning tests. Data for this study of 261 K-2 children were gathered using developed tests of learning for four broadcast television segments: a :30 Betty Crocker commercial, a 4:00 Batman segment, a 2:00 MIG-25 news story, and a 2:55 segment of Electric Company. In addition, a questionnaire was sent to parents/guardians of all subjects. Using Statistical Analysis System, the data were analyzed using frequencies, bivariate correlations, and multiple regression analysis. The best stepwise regression model using the learning score as the dependent variable is a four variable model. It accounts for 35% of the variance in learning test scores. Variables in the model include level/age which accounts for 27% of the variance in children's learning scores, achievement in school as ranked by teachers (3%), the average educational level of adults in a subjects' home (3%), and amount of viewing with adults (3.5%). An item analysis was run on all 28 items of the test by both grade and by grades combined. This study concludes that the amount of viewing that a child does with adults appears to make a difference in how well s/he understands what is viewed; that subjects in this study whose adults in the home had more education were reported to watch less television than others, usually had fewer siblings, did better in school, and learned more from the selected television programming, especially programming designed to teach content traditionally taught in elementary schools; that the amount of viewing, sex, birth order and family size do not appear to have any relationship to how much cognitively a child learns from television.

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Problem and Rationale

It has been suggested as a model of communication that at any point in time each person lives within a communication mosaic (see Becker cited in Mortensen, 1972). The mosaic communication model, unique for each individual, is composed of all the bits and pieces of information from various sources -- for example, television -- to which an individual is exposed. The communication mosaic is dynamic, changing with the individual's development, exposure patterns, attention levels, and world view. Two individuals seemingly exposed to the same bits of information are in fact probably perceiving very different realities because of other variables, such as cognitive style, competing sources of information, and context of the message. What may be an impressive bit of information for one individual may be of little consequence to another, depending upon the operating communication mosaic of each.

Television as a source of information need not be argued in the United States. The pervasiveness of this medium is supported by census data reporting the increasingly higher number of hours per day and week that increasingly more television sets are on. It is the rare individual for whom television does not play some part as an information source within his/her communication mosaic. Television is an information source and a learning

source for all individuals.

Even outside the theoretical framework of the mosaic model of communication, researchers early established that children can learn from television (Lesser, 1972; Salomon et al., 1972; Meichenbaum & Turk, 1973; Raphael & Wagner, 1974; Henderson, Swanson, & Zimmerman, 1975; Children's Television Workshop, 1977). It can be said that learning occurs <u>every single time</u> a person views television. It does not have to be an "educational" television program to produce learning. All television is educational. The important question is not what sort of television is educational, but rather <u>what</u> is learned from any particular broadcast (Storm, 1976). This is consistent with the mosaic model of communication which would extend the question to what is learned by each individual given his/her background, age, and numerous other variables unique for each person.

Neither the importance of the developing individual, nor the importance of the overall context of exposure can be overlooked when researching learning from any medium. To study television in the context of the individual's communication mosaic at least two types of research are important: 1) content analyses of the medium, and 2) studies of learning from television that include descriptive information on individual children viewing television.

This study was designed to explore young children's learning from selected television programs with attention to the viewing context and the child's family composition. No attempt was made to determine the beneficial or deleterious effects of television programs, but rather to measure learning where the subject matter varied, and to determine the relationship of other variables to that learning.

No hypotheses were formed for this study, but rather, questions about children's learning from television were asked. They included:

1) What relationship exists between the amount of time a child watches television with and without adults and that child's learning from television?

2) What relationship exists between school achievement, education of parents and learning from television?

3) What is the relationship between sex, family size, birth order, and learning from television?

Related Literature

It became apparent in the '70s that children definitely learn from television (Bandura, 1965; Gage, 1963; Salomon et al., 1972; Lesser, 1972; Meichenbaum & Turk, 1973; Henderson, Swanson, & Zimmerman, 1975); the concern turned to "what" they learn and how to approach measurement and evaluation of learning from television.

According to the theories of instructional technologists and social learning scholars, the question of what is

learned from television can be approached by studying what is programmed for television. These theories have stimulated numerous content analyses, with sexism, racism, and violent behaviors most studied. Beale (1975) suggests the examination of intention through content analysis, but Adams & Schreibman (1978) argue that content analysis cannot replace audience research for answering questions about learning. Snow (1974) criticizes research on children's learning from television that fails to define situations in other than adult terms.

While learning occurs each time there is an exposure to television content, children may fail to learn what a particular producer intends due to poorly designed instruction/content. Friedlander (1975), for example, suggested that a student's failure to learn the producer intended cognitive content in certain public health films can be attributed to confusion between a film's audio and video messages. It should not be mistaken that no learning occurs. The learning that occurs is dependent upon the learning designed, intended or not -- labelled "educational" or not. The learning designed can be found by an analysis of the instruction/content using any one of several instructional design models (Storm, 1980). The concern, then, should be the content analysis from the perspective of the viewer of the content, rather than just the content itself.

With the exception of the Children's Television Workshop, most broadcasters rarely attempt to control cognitive or affective learning outcomes. Objectives of programs are often unrelated in an instructional design sense. This does not mean that cognitive and/or affective outcomes are not being produced. Early research on cognitive learning found that only younger, duller children actually gained knowledge from television (Himmelweit, Oppenheim, & Vince, 1958). Yet, the question must be asked about what 1950s television information/content had designed for cognitive learning. Also, what specific 1950s television content was used in the early studies. While certain genres exist, not all television is alike, anymore than all books are alike. Television is a medium only -- a channel for information/content; a medium constantly changing its content.

With the changing information/content of the medium and in the context of the mosaic model of communication, television's exposure environment becomes important in the measurement and evaluation of learning. An estimate of this context of exposure can be obtained from knowing the viewing patterns of the consumer: what programs an individual usually watches, who else watches the programs with that individual, what goes on during viewing, what after, etc. Leifer, Gordon and Graves (1974) suggest that the presence of a respected adult during program viewing can greatly influence a child's reaction

to the content. This adult can be 1) controller and cultivator of program preference, 2) commentator during viewing and later acting-out behavior, and 3) discerner of reality. If what these researchers conjecture is true, adult viewers have the potential to determine the social effects of programming (see also Adler, 1978) as well as the cognitive outcomes of exposure. Heald (1980) recognized the potential influence parents have on children's viewing patterns by presenting parents with guidelines and recommendations for viewing with children.

While the potential effects of a respected adult viewing television with children is recognized, most researchers (McLeod, Atkin & Chaffee, 1972; Greenberg, Ericson & Vlahos, 1972; Thompson & Slater, 1983) found that the majority of parents do little more than place minor limits on their children's television viewing, if that. Abelman (1984) warns, however, that the parent-child interaction should not be ignored for the predispositions it might imply. Information might be collected from adults as to how much viewing is done with children, what form it takes and what levels of educational background the adults bring to the environment. Landes (1975), commenting on the linguistic environment, says that it is often taken for granted in research on speech acquisition. He states that ignoring the input of parents and environmental factors for innate ideas is unfortunate. He suggests that researchers specify the environment.

Research Methodology

Two hundred sixty-one kindergarten, first and second grade students were the subjects of this study. After pilot testing, 219 subjects were available to be tested for cognitive learning after viewing randomly selected broadcast television segments. Program content for this study was selected at random from a single weekday of network broadcasting. The first segment selected was a 0:30 commercial. The second selection was a 4:00 portion of Batman. A 2:00 news story on the Russian MIG-25 fighter plane seen on ABC was selected as the third type. The final selection was a 2:55 segment of the Electric Company.

An instructional development approach was used to construct a testing instrument for each broadcast television segment. The process included two major steps: 1) Identification of some potential learning outcomes for each segment, and 2) Development of test items based upon the potential learning outcomes. The final instrument contained twenty-eight items: one three-choice, twenty-three two choice, and four free-response items.

A questionnaire was also developed to gather data from a parent or guardian of each subject on : amount of viewing, composition of family, and long term context of exposure to television for each subject. Respondents were asked to assess the average amount of time their child watched television during the school week, Saturdays and Sundays. They were also to estimate the amount of

time the child watched television with an adult during the school week, Saturdays and Sundays. One section of the questionnaire included questions on the composition of the family and the long term context of exposure for each subject.

Classroom teachers were asked to rank students in their classes according to academic achievement. Three categories were used in the ranking: high, medium and low.

Small groups of five or fewer subjects viewed each televised segment, with individual interview testing after each segment. A learning score was determined for each subject on each of the four segments, as well as a total learning score. These were the dependent variables. The independent variables included: age, sex, level in school, television viewing hours with and without an adult, birth order, family composition, and education of parents.

Using the Statistical Analysis System, the data were analyzed using frequencies, bivariate correlations, and stepwise multiple regression analysis. An item analysis was run on all 28 items of the test both by grade and by grades combined.

Results

The number of subjects included in each of the following analyses varies according to the values available for the various variables.

Achievement

Teachers classified 79 (or 36%) of the subjects as high achievers, 90 (41%) as medium achievers, and 47 (21%) as low achievers.

Learning Test

The learning test contained 28 questions in four segments, one for each of the televised slices. The mean score for segment one was 2.74; 6.38 for segment two; 3.75 for segment three; and, 6.49 for segment four. The learning test as a whole had a mean score of 19.26 (69%). A table of the learning test raw score means by grades and classrooms for each segment and the total test appears as Table 1.

Item Analysis of Learning Measurement Instrument

Item analyses were run by grade in school on all test questions used to measure learning from broadcast segments. The items for all grades generally discriminated positively and the distractors generally discriminated negatively. The mean test discriminations for all grades on all tests was equal to or above .22. The range in mean test discriminations was from .22 to .58. The mean test difficulty for all grades on all tests was equal to or above .49. The range in mean test difficulty was from 49.20 to 85.78.

Amount of Viewing

The children in the study watched a great deal of

Table 1

Raw Score Means for Learning Test Segments*

		Segments				
		1	2	3	4	Total
	Perfect Score:	5.0	9.0	5.0	9.0	28.0
K (85)	(24) room one (am)	2.46	5.79	3.96	5.54	16.92
	(18) room two (am)	2.50	5.77	3.66	5.11	15.67
	(23) room one (pm)	2.60	5.87	3.83	5.65	17.52
	(20) room two (pm)	2.80	5.1	3.95	5.05	15.85
	Total	2.59	5.63	3.85	5.34	16.49
1 (68)	(22) room one	2.68	6.55	3.95	7.18	19.86
	(24) room two	2.67	5.84	3.92	7.17	20.58
	(22) room three	2.50	7.14	3.27	7.05	19.96
	Total	2.62	6.51	3.71	7.13	20.13
2 (57)	(17) room one	3.35	7.53	3.76	7.70	22.35
	(19) room two	3.32	7.37	4.0	7.63	22.26
	(21) room three	3.19	7.19	3.76	7.90	22.05
	Total	3.29	7.36	3.84	7.74	22.22
(210)		2.74	6.38	3.75	6.49	19.26

*(1) commercial, (2) Batman, (3) news, and (4) Electric Company. All totals broken down by rooms and grade levels, kindergarten, first, and second.

television both with and without their parents. Table 2 displays the reported viewing hours of these subjects by week, day, average Saturdays and Sundays. The mean reported number of hours of television watched alone per day during the week is 3.40; on Saturdays, 4.58; on Sundays, 3.04. During the week it was reported that subjects watch an average of 2.47 hours with an adult; 2.61 hours with an adult on Saturdays; and 2.78 hours with an adult on Sundays.

Family Composition

Children in the study came largely from two-adult households. The mean number of adults per home was 2 with 173 of the subjects reporting two adults in the family home, 15 subjects with only one adult, and 12 with three adults. Eighty-four of the subjects were first-born with 52 second children, 30 third children, 18 fourth children, 6 fifth children, 4 sixth children, 2 seventh children, 1 ninth, 3 tenth, and 1 eleventh child. Subjects reported 68 with no brothers and 69 with no sisters. Eighty-eight had one brother and 30 had two. Eighty-seven had one sister, 25 had two, and 16 had three.

Parents of the children tended to be largely high school graduates. The highest reported educational degree was a master's degree (see Table 3).

Test Day, Test Group, Test Order

There was no significant relationship between test day, test group and test order and the scores on the learning tests.

Table 2

Absolute Frequencies and Mean Reported Viewing Hours Per Child Weekly*

No. of Hours	Hours Daily During the Week (alone)	Hours Daily During the Week (with adult)	Saturday Hours (alone)	Saturday Hours (with adult)	Sunday Hours (alone)	Sunday Hours (with adult)
0	0	8	2	22	5	10
1	3	38	3	33	26	31
2	44	73	12	52	52	58
3	67	36	38	31	52	43
4	52	26	43	31	32	31
5	16	9	38	14	15	13
6	11	5	36	10	11	6
7	3	1	10	1	3	3
8	0	1	13	3	4	4
Missing	23	22	24	22	19	20
Total	219	219	219	219	219	219
Mean	3.40	2.47	4.58	2.61	3.04	2.78

*Total mean hours of television viewing per week is equal to 42.36 hours.

Table 3

Absolute Frequencies for Highest Degree Obtained by Adults* in a Subject's Family

Highest Degree Obtained	Adult No. 1	Adult No. 2	Adult No. 3
None	5	21	
Grammar School	24	28	1
High School	138	124	11
Community College	20	20	1
College--BA	6	6	
College--BS	5	2	
Master's	2		
Missing Cases	14	14	202
Total	215	215	215

*Adults defined as persons over 18 years of age living in the home.

Bivariate Correlations

Level in School

There was a highly significant relationship between learning in this study and the level, or grade, in school with $r = .54$, $p < .05$. Table 1 displays the raw score means for learning by grade level. There is an almost six point spread between kindergarteners and second graders. The largest differences were in test scores for segments two -- Batman -- and four -- Electric Company. Grade level does not appear to be related to any of the remaining variables in the study except, of course, age.

Age

A significant relationship between learning in this study and a subject's age was found with $r = .49$, $p < .05$. Neither age nor grade level was significantly related to learning from the news segment. "Age" is related to none of the other variables in the study except, as indicated above, level in school.

Achievement in School

Achievement in school, as assessed by the classroom teachers, was found to be related to the total learning score with $r = .17$, $p < .05$. Achievement in school was not related to an individual's score on any of the first three segments of the learning test: the commercial, Batman or the news. An individual's score was related on

the fourth segment, Electric Company, $r = .17$, $p < .05$, to school achievement. Achievement was found to be negatively related to the total hours a subject watched television ($r = -.25$, $p < .05$), the amount of time a subject watched television with an adult ($r = -.21$, $p < .05$), the number of hours a child watched television alone on Saturdays ($r = -.26$, $p < .05$), the number of hours a child watched television on Saturdays with an adult ($r = -.23$, $p < .05$), the number of hours a subject reported watching television alone on Sundays ($r = -.24$, $p < .05$), and the number of hours a subject reported watching television on Sundays with an adult ($r = -.19$, $p < .05$). Children ranked by teachers as high achievers tended to report watching less television either with or without adults.

Educational Level of Adults in Subject's Home

The relationship between the learning score from the television material in this study and the average educational level of the adults in the subject's home was significant at the .05 level with $r = .14$.

The adults' average educational level and the total number of hours a subject watched television weekly were negatively related with $r = -.20$, $p < .05$. The adults' educational level was negatively related to family size ($r = -.17$, $p < .05$), age of subject ($r = -.17$, $p < .05$) Saturday television hours a subject watched alone ($r = -.15$, $p < .05$), Saturday hours a subject watched with an adult

($r = -.25$, $p < .05$), the number of Sunday hours a subject watched alone ($r = -.20$, $p < .05$), and the number of Sunday hours a subject watched with an adult ($r = -.23$). A significant positive relationship was found between the adult's average educational level and the subject's achievement in school with $r = -0.16$, $p < .05$.*

Significant correlations were not found to exist between the learning score and the amount of viewing, birth order, family composition (as defined only by the number of adults and siblings), or sex.

All of the segment scores are reasonably well correlated .30 to .57 except for the learning scores for news which are not significantly correlated with the learning scores for any of the other segments (see Table 4).

Stepwise Multiple Regression Analysis

Regressions were run in a stepwise fashion using the statistical analysis system. The computer selected the order for entry of significant variables into the model.

The best stepwise regression model using the learning score as the dependent variable is a four variable model. It appears as Table 5. This model accounts for 35% of

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*A negative r here is the result of the way in which data were gathered and coded: higher numbers meant more education for the variable adults' average educational level; lower numbers meant higher achievement in school for that variable.

Table 4

Summary of Correlations between Age, Level in School, Achievement in School, Education of Adults, and the Four Segments and Total Learning Scores

	Commercial	Batman	News	Electric Company	Total
Age	.24	.44	.05	.46	.49
Level	.28	.47	.07	.51	.54
Achievement	.08	.12	.06	.17	.17
Average Education of Adults	.11	.09	.04	.13	.14
Commercial	1.00	.30	.10	.43	.62
Batman	.30	1.00	.03	.57	.80
News	.10	.03	1.00	.05	.27
Electric Company	.43	.57	.05	1.00	.87
Learning Total	.62	.80	.27	.87	1.00

*The four segments included: the commercial segment, the Batman segment, the news segment, and the Electric Company segment. Correlations are significant with r greater than .14 at the .05 level.

Table 5

Best Stepwise Regression Model Using Total Learning Score as Dependent Variable, Four Variable Model

	DF	Mean Square	F	Prob > F
Regression	4	302.93	25.57	.0001
Error	186	11.85		
Total	190			

	B Value	Standard Error	Type II Sum of Squares	F	Prob > F
Intercept	16.10				
Achievement	-1.31	0.35	169.61	14.32	.0002
TV with Adult	0.13	0.06	50.08	4.23	.0412
Adult Education	.96	0.36	84.24	7.11	.0083
Level/Age	2.89	0.31	1047.63	88.42	.0001

R Square = 0.35

the variance in learning test scores. Variables in the model include level/age which accounts for 27%, achievement, 3%, the education of adults in the subject's home, 3%, and a subject's television viewing with adults for 3.5% of the variance in scores.

Stepwise regressions were run using the individual segment test scores as dependent variables. Three regression models were found: Betty Crocker learning test score with level/age, education of adults in subject's home, and achievement; Batman test score with level/age, amount of viewing a subject was reported as watching with adults, and achievement; and Electric Company test score with level/age, education of adults in subject's home, amount of viewing a subject was reported as watching with adults, individual viewing, and achievement. These appear as Tables 6, 7, 8, respectively. The models account for 10% of the variance in the Betty Crocker commercial segment test scores, 20% of the variance in the Batman segment test scores, and 33% of the variance in the Electric Company segment test scores. No combinations were found that accounted for a significant amount of the variance in the news test scores.

Discussion and Conclusions

This research was designed to investigate young children's learning from selected television program content where the subject matter varies and to test for relationships between that learning and a number of inde-

Table 6

Best Stepwise Regression Model Using Betty Crocker Commercial Segment Score as Dependent Variable; Three Variable Model

	DF	Mean Square	F	Prob > F
Regression	3	8.17	7.46	
Error	187	1.09		0.0001
Total	190			

	B Value	Standard Error	Type II Sum of Squares	F	Prob > F
Intercept	2.29				
Achievement	-0.18	0.10	3.27	2.99	0.09
Adult Education	0.21	0.10	4.63	4.22	0.04
Level/Age	0.38	0.09	18.66	17.02	0.0001

R Square = 0.10

Table 7

Best Stepwise Regression Model Using Batman Segment Score as Dependent Variable; Three Variable Model

	DF	Mean Square	F	Prob > F
Regression	3	42.48	15.44	0.0001
Error	187	2.75		
Total	190			

	B Value	Standard Error	Type II Sum of Squares	F	Prob > F
Intercept	5.85				
Achievement	-0.40	0.16	16.13	5.86	0.0164
With Adult	0.05	0.03	7.41	2.69	0.1024
Level/Age	0.94	0.14	112.84	41.02	0.0001

R Square = 0.20

Table 8

Best Stepwise Regression Model Using Electric Company Segment Score as Dependent Variable; Four Variable Model

	DF	Mean Square	F	Prob > F
Regression	5	61.59	18.12	0.0001
Error	185	3.39		
Total	190			

	B Value	Standard Error	Type II Sum of Squares	F	Prob > F
Intercept	5.01				
Achievement	-0.63	0.18	39.46	11.61	0.0008
Amount of Viewing	-0.05	0.05	4.70	1.38	.2410
With Adult	0.11	0.05	18.96	5.58	0.0192
Adult Education	0.53	0.19	25.90	7.62	0.0064
Level/Age	1.43	0.16	257.21	75.67	0.0001

R Square = 0.33

pendent variables. It used a learning measurement instrument developed from the selected television segments using principles of instructional design. For the purposes of analysis the test items were assigned correct and incorrect responses based upon the central story line and cognitive content.

The dependent variable was learning from the television material. The independent variables included: age, level in school, school achievement, education of the adults in the family, sex, television viewing hours with and without an adult, birth order, and family composition.

The study was designed to explore a number of questions:

1) What relationship exists between the amount of time a child watches television with and without adults and that child's learning from television?

The amount of viewing that a child does with adults appears to make a difference in how well s/he understands what is viewed.

In this study, parents reported how much television their child watched on a daily, Saturday, and Sunday basis, with and without them. Only eight adults reported that their children watch no television during the week with an adult. Quality of the time adults spend viewing with children was not measured. Many adults watching with children make no comment at all during viewing, while

others offer a running commentary. It has been suggested that learning from any medium can be enhanced by verbal supplements that point out and/or reinforce a particular message. Verbal supplements can also distract. More likely learning of specific television material is dependent upon comprehension of other television viewed with or without adults. Comprehension is probably a result of a child's age and his/her learned ability to learn from any medium.

This study took the suggestions of several researchers (Leifer, Gordon & Graves, 1974; Adler, 1978; Heald, 1980) that the presence of a respected adult during program viewing can greatly influence a child's reaction to content and measured the amount of with-adult viewing done by subjects to see if it would account for any of the variance in scores on a learning test from selected broadcast segments. This study found that previous viewing with adults was related to a subject's learning test score and accounted for 3.5% of the variance in scores.

Although nothing conclusive can be said from this one study about subjects viewing with adults, other than the fact that a lot of it goes on, there is some indication that adult viewing and what goes on during joint viewing slightly improves children's ability to learn from television.

2) What relationship exists between school achievement,

education of parents and learning from television?

Subjects in this study whose adults in the home had more education were reported to watch less television than others, usually had fewer siblings, did better in school, and learned more from the selected television programming, especially programming designed to teach content traditionally taught in elementary schools.

A significant negative relationship was found in this study between the adults' level of education and the amount of television a child was reported to watch. The higher the educational level of adults, the less television s/he reported a child tended to watch. This may mean that the more educated an adult, the more s/he controls the television viewing of offspring. According to the adults in their homes, the average young child in this study watched about 3.39 hours of television per day without adults during the school week. (See Table 2 for raw data of reported viewing.) This brings up an interesting point about reported data. If children are watching without adults present, how do those adults estimate that viewing time? Also, would adults tend to report higher or lower figures depending upon how they wished to appear to the researcher? I suspect some may have as, after all, they were told that their child would participate in a study on television and the questionnaire free responses had a generally positive

attitude towards television. The more educated the parents, however, the fewer hours of television they report their children viewing. Television diaries might have been a better measure, although these are reports also. Subjects in the study whose parents had more education had fewer siblings, possibly because families were delayed while parents were in school. This is also consistent with established relationships between amount of education and family size.

The amount of television a subject was reported as watching was also negatively related to school achievement as ranked by the teachers. Because the school had no standardized testing program, teacher rankings were used. The validity of these could be questioned. Although as an estimate of a subject's class ranking, the teacher report of school achievement is usable. This study supports the earlier work of Thompson (1964) who found a tendency for heavy viewers to be less intelligent and to do poorly in school. This should not be thought of as necessarily a causal relationship. While this study found that negative relationship between amount of viewing reported and school achievement, it also found a negative relationship between amount of viewing reported and the educational level of adults in a subject's home. The implication then that more educated adults just do not allow their children to watch and do not watch

themselves as much television as less educated parents. More educated parents in this study had children who ranked higher in school achievement. In this study the amount of viewing was in no way related to subjects' performance on the television learning test. This study found no evidence to conclude that the amount of viewing negatively affected learning.

Both the educational level of adults in a subject's home and the child's achievement level in school were significantly related to the learning score. It would seem that parents with more education tend to monitor their children's viewing, have children that do better in school, and are reported watching fewer hours of television.

There is some, although not overwhelming, evidence from this study that children who learn well in school, learn well from television. The relationship between a child's school achievement and his/her learning score from the Electric Company segment was significant. A significant relationship was not found between school achievement and the learning scores on the other [illegible] segments. Electric Company, of the four segments, being most like school, tended to be understood best by those who apparently best understood school material. If there had been a relationship between school achievement and learning from the cognitive content of the news story as well as the cognitive content of Electric Company, then it could have been

said that achievement in school is related to learning cognitive content from television for this study. However, from this study it can be concluded only that the learning of certain types of broadcast television material usually taught in schools is probably related to school achievement.

3) What is the relationship between sex, family size, birth order, and learning from television?

Sex, birth order and family size do not appear to have any relationship to how much a child learned from television segments in this study on a limited test (28 items) of cognitive content.

This study's failure to find a relationship between family composition and learning from television programming should not be interpreted as meaning that the family has no effect. The family structure and birth order and its impact on a child's ability to learn should be studied as Zajonc (1977) suggests. This study did not follow Zajonc's confluency model for intellignece and birth order effects. No conclusions about birth order can be drawn from this study.

A strength of this study is that it demonstrated a procedure for measuring learning from television material. Using instructional development principles, a reliable measurement instrument for television learning was

developed. This instrument was subjected to peer review, review by other instructional designers and teachers, and was pilot tested. An item analysis was also run after collection of the data to assess the difficulty and discrimination of the test items.

This study concludes that the amount of viewing that a child does with adults appears to make a difference in how well s/he understands what is viewed; that subjects in this study whose adults in the home had more education were reported to watch less television than others, usually had fewer siblings, did better in school, and learned more from the selected television programming, especially programming designed to teach content traditionally taught in elementary schools; that the amount of viewing, sex, birth order and family size do not appear to have any relationship to how much cognitively a child learns from television.

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REFERENCES

Abelman, R. Styles of parental disciplinary practices as a mediator of children's learning from prosocial television portrayals. Paper presented for the Mass Communication Division of the Speech Communication Association, Chicago, Illinois, 1984.

Adams, W., Schriebman, F. (Eds.). Television network news: Issues in content research. Washington, D.C.: George Washington University, 1978.

Adler, R.R. Parents tv guide: Useful tips about rewarding ways to watch and discuss television with children. Learning, 1978 (December), 7, 1-8.

Bandura, A. Influences of models: Reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965, 1 (6), 589-595.

Beale, J. A preliminary model for the examination of intention through content analysis. Communication Research, 1975 (January), 2 (1), 86-96.

Children's television workshop. Quarterly reports for January-March 1977 and April-June 1977. New York: Children's Television Workshop, 1977.

Friedlander, B.Z. Instructional tv: An agenda for self-analysis. Public Telecommunications Review, 1975 (September/October), 3 (5), 15-21.

Gage, N.L. (Ed.). Handbook of research on teaching. Chicago: Rand McNally, 1963.

Greenberg, B.S., Ericson, P.M., & Vlahos, M. Children's television behavior as perceived by mother and child. In E. A. Rubinstein, G.A. Comstock, and J. P. Murray

(Eds.), Television and social behavior, volume IV, Television in day-to-day life: Patterns of use. Washington, D.C.: U.S. Government Printing Office, 1972.

Heald, G.R. Television viewing guides and parental recommendations. Journalism Quarterly, 1980, 57, 141-144.

Henderson, R.W., Swanson, R., & Zimmerman, B.J. Inquiry response induction in preschool children through televised modeling. Developmental Psychology, 1975 (July), 11 (4), 523-524.

Himmelweit, H. Oppenheim, A.N., & Vince, P. Television and the child: An empirical study of the effects of television on the young. In collaboration with D. Blumenthal, and others. New York: Oxford University Press, 1958.

Landes, J.E. Speech addressed to children: Issues and characteristics of parental input. Language Learning, 1975 (December), 25 (2), 355-379.

Leifer, A.D., Gordon, N.J., & Graves, S.B. Children's television: More than mere entertainment. Harvard Educational Review, 1974 (May), 44 (2), 213-245.

Lesser, G.S. Learning, teaching and television production for children: The experience of Sesame Street. Harvard Educational Review, 1972 (May), 42, 232-272.

McLeod, J., Atkin, C.K., and Chaffee, S. Adolescents, parents and television use: Adolescent self report measures from a Maryland and Wisconsin sample. In G.A. Comstock and E.R. Rubinstein (Eds.), Television and social behavior: Television and adolescent aggressiveness, volume III. Washington, D.C.: U.S. Government Printing Office, 1972.

Meichenbaum, D.H. & Turk, L. Implications of research on disadvantaged children and cognitive training programs for educational television. School Psychology Digest, 1973 (February), 2 (4), 29-36.

Mortensen, A.D. Communication models. Communication. New York: McGraw-Hill, 1972.

Raphael, M.A. & Wagner, E.E. Training via tele, audio

tape or TV makes a difference: Or does it? Training and Developmental Journal, 1974 (December), 28 (12), 3-5.

Salomon, G. Educational effects of Sesame Street on Israeli children (brief summary). September, 1972. E.R.I.C. ED 070317

Snow, R.P. How children interpret tv violence in play context. Journalism Quarterly, 1974 (Spring), 51 (1), 13-21.

Storm, S.R. Children's learning from selected segments of broadcast television programs and its relationship to selected variables. A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Education in the Graduate College of the University of Iowa, December, 1980.

Storm, S.R. Comprehension: The challenge for children's television. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Miami Beach, April, 1977. Educational Communication and Technology, 1978 (Fall), 279-280. E.R.I.C. ED 142197.

Storm, S.R. Social effects of television: It's teaching, but what? Faculty seminar presented at the Iowa State University Department of Speech, April 29, 1976.

Thompson, G.W. Children's acceptance of television advertising and the relation of televiewing to school achievement. The Journal of Educational Research, 1964 (December), 58, 171-174.

Thompson, T.L. & Slater, D. Parent-child co-viewing and parental monitoring of television: Their impacts and interaction. Paper presented at the Speech Communication Association annual meeting, Washington, D.C., 1983.

Zajonc, R.B. Family configuration and intelligence. Science, 1977 (April), 192, 227-236.